

PROPERTY PLANNING COMMON ELEMENTS

COMPONENTS OF MASTER PLANS

HABITATS AND THEIR MANAGEMENT

Impoundments and Flowages

Description

This page covers management of impoundments. Impoundments, also known as reservoirs or flowages, are artificially created standing water bodies produced by dams on streams, rivers, or other drainages. Dams can either be a result of beaver activity or constructed by humans for various purposes (electricity generation, navigation, recreation, etc.). The state of Wisconsin defines impoundments as waterbodies for which over one-half of the maximum depth is due to the presence of a dam. Impoundments vary greatly in size, configuration, flow patterns, water chemistry, and biota due to the diverse nature of streams, rivers, and dams.

Impoundments, particularly large ones, are popular for recreation and heavily used for boating, swimming, fishing, hunting, and trapping. Many have developed shorelines, with homes, businesses, and tourist destinations. The larger and more southerly ones have the richest fish faunas. Most impoundments are dominated by warmwater fishes.

Most impoundments on state lands were constructed during the 20th century to create waterfowl habitat and places for waterfowl hunting.

Ecological Landscape Opportunities

Ecological Landscape	Opportunity*
Central Lake Michigan Coastal	M
Central Sand Hills	M
Central Sand Plains	M
Northwest Sands	M
Southeast Glacial Plains	M
Forest Transition	I
North Central Forest	I
Northern Highland	I
Southern Lake Michigan Coastal	I
Western Prairie	I
Northeast Sands	P
Northern Lake Michigan Coastal	P
Northwest Lowlands	P
Southwest Savanna	P
Superior Coastal Plain	P
Western Coulee and Ridges	P

M = Major; major opportunity exists in this Landscape; many significant occurrences are recorded, or restorations likely to be successful.



I = Important; several occurrences important to maintaining the community in the state occur in this Landscape.
P = Present; community is present in the Landscape but better opportunity exists elsewhere.

Rare Species

Many Species of Greatest Conservation Need (SGCN) are associated with impoundments based on the findings in [Wisconsin's 2015 Wildlife Action Plan](#). To learn more, visit the [Aquatic communities](#) page and click on "Riverine Impoundment" under "Explore aquatic communities".

Threats

- Runoff carrying sediments, nutrients, bacteria, or contaminants from agricultural areas, construction sites, or residential, urban, or industrial areas (particularly when these developed areas occur on the shorelines of lakes) washes into impoundments, negatively impacting their water quality and associated plant and animal communities.
- Impoundments are vulnerable to instream siltation and concentration of nutrients and contaminants, which reduces their depth and exacerbates nutrient loading, increased water temperatures, oxygen depletion, and growth of undesirable or hazardous aquatic plants (e.g., blue-green algae).
- As with natural lakes, invasive species are a threat to impounded waters. Early and abundant growth of invasive plants can overwhelm native plants, disrupt predator-prey relationships, and limit important aquatic food plants for waterfowl. Die-off and decay of these plants in summer can cause oxygen depletion and contribute to nutrient loading and algal blooms. Non-native animals outcompete their native counterparts, destroy beds of aquatic plants, and impact water quality and clarity. Especially problematic species include Eurasian water-milfoil, curly-leaf pondweed, common carp, rusty crayfish, and non-native mussels.
- Altered temperature and precipitation patterns associated with climate change may affect impoundments by changing hydrology, water levels, and water chemistry, facilitating invasion by non-native invasive species, and increasing runoff. More frequent, higher-intensity storms threaten dams and water control structures that create impoundments, which may fail during such events and result in destructive flooding downstream.

Management Techniques

- Water level manipulation
- Pesticide treatments
- Fish passage practices
- Lake aeration
- Nearshore practices

Management Prescriptions

- Wherever possible, manage impoundments as part of a complex of interconnected, related habitats (e.g., open, shrub, or forested wetlands, upland forests, etc.).
- Maintain dikes and water control structures in good condition.



- Attempt to prevent the spread of non-native invasive species into impoundments where they currently do not occur. Employ chemical and mechanical methods to control them where they are present.
- Where possible, use buffers to protect impoundments from negative impacts of surrounding land uses (e.g., sedimentation, pollution).
- On appropriate sites where water level manipulation is possible, seasonally manipulate water levels to improve and enhance habitat for waterfowl and shorebirds and to facilitate vegetation management practices.
- Install impoundments in high priority areas when they will help meet clear and achievable management objectives. Strategically design impoundments to enable efficiencies while limiting resource investments and demand on staff time.
- Remove impoundment infrastructure in lower priority areas when there are high costs and low returns on investment. Restore natural hydrology and appropriate native plant communities following dam abandonment.

